offering similar products at prices that reflect their efficiencies. When regulatory requirements are applied asymmetrically in a competitive market, distortions are created that may prevent the most efficient firm from serving customers at the least possible cost. Therefore, as an industry transitions from monopoly to competition, the goal of the Commission in this respect should be to remove regulatory requirements where those requirements (a) are not necessary to prevent the regulated firm from exercising market power, and (b) prevent the regulated firm from responding to competition in the same manner as entrants.

The Commission appropriately seeks as an initial matter to identify phases for removing certain specified requirements and the "triggers" for determining when a company or service enters one of these phases. However, as I will describe in more detail below, the Commission can afford to be somewhat more aggressive than proposed in the Notice in reducing regulation in both phases without concern about the exercise of market power. As a guiding principle, I argue that the Commission should consider Phase 1 to be reduction of regulation in response to the demonstration of potential competition. Phase 2 encompasses further reductions (or even elimination) of regulation in response to a demonstration of the practical feasibility of competition by an actual competitive presence. Regulatory relief in each phase should, to the extent possible, mirror changes in entry conditions.

In terms of the specific reductions in regulation in response to market developments, the key point is that entrants, as non-dominant carriers under the Commission's rules, are automatically able to tailor their prices and service offerings to the demands of particular customers and customer classes. Price rules that dictate inefficient rates, such as geographic averaging, encourage entry by high cost carriers in the areas where prices are too high and discourage efficient entry where prices are too low. If inflexible dominant carrier regulation of the incumbent LECs prevents them from pricing similar offerings competitively, the entrant could acquire market share even though the ILEC could offer a similar or superior service. Regulation should be reduced as competition develops in order to ensure that incumbents and entrants alike are symmetrically able to compete in the market.

The reason for applying regulatory constraints to dominant carriers is the possibility that dominant carriers will be able to use any flexibility to price more competitive services below economically-efficient levels while recouping the foregone revenues from customers who do not have competitive alternatives. For example, even under the FCC's price cap for ILECs, dominant firms are subject to pricing restraints that prevent them from lowering rates for competitive services and making it up by raising rates for non-competitive services. But this strategy is only feasible if the dominant carrier has significant market power over a large enough subset of customers from which to extract sufficient additional revenues to pay for revenue losses from competitive customers. The prospect of potential and actual competition for access services undermines the ILEC's ability to raise rates for less competitive services in order to lower rates for competitive services below efficient levels; therefore, regulatory relief that allows the ILEC to price flexibly is appropriate when the triggers are met.

A. Phase 1: Demonstration of Potential Competition

There are two reasons for considering regulatory relief where there is potential competition. The first is related to the development of an efficient market structure. The second concerns protection of consumers from potential monopoly abuse.

The Commission instituted (or implemented per the MFJ) a number of pricing rules in its development of access charges in the early 1980s that facilitated the development of long distance competition, such as geographically averaged rates, the equal access charge rule, and uniform rates for switched access. Left in place, as competition unfolds in access markets, these same policies will create entry incentives that will frustrate the Commission's goal of the development of an efficient access marketplace. Regulatory freedoms which will allow correction of these deficiencies and send the correct pricing signals to all competitors -- prior to actual entry -- will ensure that an efficient access market structure will develop.

Second, allowing rate structure changes, as proposed by the FCC for Phase 1, will not create opportunities for raising less competitive rates by leveraging market power. There does not have to be any actual market entry by competitors in order to discipline ILEC pricing, as long as the prospect of competition is real and apparent to the incumbent. This condition is satisfied when entry and exit is relatively free because any abuses by the incumbent will attract entrants who will be capable of responding quickly. The access market becomes subject to this incumbent-disciplining potential competition when the incumbent has met some, but perhaps not all, of the Act's interconnection obligations, which is roughly what the Commission identifies as the trigger for Phase 1. It is worth noting that in its Merger Guidelines, the Justice Department also recognizes the importance of potential entry in preventing firms from exercising market power.[23]

1. Phase 1 Triggers

The Commission suggested the following triggers for Phase 1:

1) unbundled network element prices are based on geographically deaveraged, forward-looking economic costs in a manner that reflects the way costs are incurred;
2) transport and termination charges are based on the additional cost of transporting and terminating another carrier's traffic;
3) wholesale prices for retail services are based on reasonably avoidable costs;
4) network elements and services are capable of being provisioned rapidly and consistent with a significant level of demand;
5) dialing parity is provided by the incumbent LEC to competitors;
6) number portability is provided by the incumbent LEC to competitors;
7) access to incumbent LEC rights-of-way is provided to competitors;
8) open and non-discriminatory network standards and protocols are put into effect.

The relevant question here is what conditions have to be met in order for competitive <u>access</u> entry and exit to be relatively free. Only triggers numbered one through four, above, meet that standard, and these triggers will generally be met if the ILEC has an approved

[23] The Merger Guidelines provide that "other firms not currently producing or selling the relevant product in the relevant area [are treated] as participating in the relevant market if their inclusion would more accurately reflect probable supply responses." The U.S. Department of Justice and Federal Trade Commission, <u>Horizontal Merger Guidelines</u>, April 2, 1992, § 1.32 at 20-21.

Statement of Generally Available Terms for interconnection or an approved negotiated or arbitrated agreement with CLECs. The other proposed triggers are related to full local exchange competition, and the provision of access service is not contingent on providing local exchange service. These additional triggers should increase the confidence of the Commission that potential competitive entry will be a restraint on the incumbent.

The triggers listed above are sufficient to make market entry for access service as open as it can be. If these conditions are met, a new entrant can provide access competition simply by purchasing unbundled network elements and using those elements (either to supplement existing facilities, or, pending resolution of judicial review, repackaged as a complete service) as an alternative access arrangement. Knowing that its own tariffed rates for unbundled elements allow a competitor readily to enter the market, the incumbent local exchange carrier will lack real market power.

Although I generally agree with the FCC's first four proposed triggers for Phase 1, I do not agree with the implication in the Notice that compliance with these triggers should be judged based on the pricing standards in the Interconnection Order, rather than the arbitration decisions of the state commissions. The FCC should only require compliance with its pricing standards if its Order is upheld in court. Otherwise, the demonstration of open markets should proceed and be judged in the manner provided by Congress in the Act -- with the FCC setting the operational standards of Section 251 in the Act, and the state utility commissions determining the just and reasonable prices for interconnection, unbundled network elements, and wholesale discounts. The Commission should not presume that it has discovered the "one true path" to local exchange competition and that any state deviation from its findings represents a failure to promote competition. Many state commissions were developing and implementing pro-competitive policies prior to the passage of the Act, and they have been diligent in implementing the agreement/arbitration requirements in compliance with the Act for several months now. There is no reason to doubt the full commitment of the state commissions to the goals of the Telecommunications Act.

2. Phase 1 Relief

When an ILEC has met all four of the relevant triggers, the Commission should reduce regulatory requirements as Ameritech recommends: (i) allow geographic rate deaveraging for all access services; (ii) permit promotional pricing, such as volume and term discounts; (iii) allow contract pricing; (iv) deregulate new services; (v) lower the "no earnings sharing" X-factor in the price cap from 5.3 to 4.0; and (vi) permit growth discounts.

a. Geographic Deaveraging

Geographic rate deaveraging is appropriate for Phase 1 because it allows ILECs to price their access services in a manner that creates incentives for efficient competition. This is particularly important because the availability of unbundled network elements, which may be geographically deaveraged, represents the quickest and easiest entry path for potential competitors. Unless access rates are also geographically deaveraged, potential access competitors will make their entry decisions on the basis of comparing <u>deaveraged</u> network element prices with averaged access prices. Clearly, under these conditions, inefficient entry and competition on the basis of arbitrage are likely to occur.

b. Promotional and Contract Pricing

LECs who meet the Phase 1 triggers also should be allowed to offer promotional pricing, such as volume and term discounts, and to utilize contract pricing. Promotions and contracts are features of most competitive markets and represent a legitimate competitive response to customer demand. ILECs should be able to offer these pricing plans for the simple reason that competitors also will be able to offer them. Such pricing plans may stray from traditional principles of common carriage, but they are not anticompetitive in an open market setting. Rather, they are a mechanism for reflecting the lower costs of serving customers with significant volume and/or who are voluntarily willing to commit their requirements for a certain period of time, thus reducing the costs related to customer churn.

c. Deregulation of New Services

New access services should not be regulated after the ILEC meets the triggers for Phase 1 for two reasons. First, basic access offerings exist and will continue to exist with or without new service offerings. Therefore, ILECs have no market power over new services because customers always have the option of taking the basic service. Second, as the Commission noted, delays associated with regulatory approval of new service offerings may harm consumer welfare. Third, the need to seek regulatory approval may provide a disincentive for ILECs to develop new services due to the uncertainty associated with regulatory approval and because regulatory filing requirements make the details of the new service public prior to its introduction. Deregulating new services will not have an anticompetitive effect because the Act's antidiscrimination requirements prevent the ILEC from using a new access service offering to advantage its own interLATA service.[24]

d. Lower the "No Earnings Sharing" X-Factor

Ideally, regulation seeks to mimic the outcomes that would be achieved in a fully competitive market. Under price cap regulation, this means establishing an index for future price changes that represents the price changes that would occur if the market was competitive. In its price cap decision, the Commission noted that the "correct" productivity offset to act as a surrogate for marketplace forces was equal to 4%.[25] However, in order to be regulated under the price cap with no earnings sharing, the Commission required ILECs to accept a higher productivity offset of 5.3% as a form of "backstop" insurance policy.[26] Once the potential for competition is demonstrated, however, as it is for Phase 1, there is no longer a need for this insurance policy in the Commission's price cap -- potential competition itself plays that role. Maintaining an X-factor that is too high may create a situation in which access prices ratchet

[24] The Commission raises the possiblity that a new service may be so superior to the existing service that availability of the existing service is not a sufficient safeguard. The likelihood of such an event occuring during the transition to a competitive access market is not strong. If it does happen, it will be readily apparent to the Commission, which then can take corrective action, if necessary.

[25] FCC 95-132, In the Matter of Price Cap Performance Review for Local Exchange Carriers, CC Docket No. 94-1, First Report and Order, released April 7, 1995, ¶ 209.

[26] Id., ¶ 225.

downward, potentially discouraging efficient entry by competitors by eliminating profitable investment opportunities. Therefore, in Phase 1 the Commission should lower the productivity offset to 4% for ILECs who still are keeping the "no sharing" option.

e. Growth Discount

Another rate flexibility proposal that the Commission should consider is growth discounts, which are similar in concept to a delayed volume commitment. A growth discount is a price reduction on current services purchased, but based on firm commitments of future access volumes. Thus, in effect, a growth discount reflects both a volume commitment and a term commitment (since there would be no guarantee of the volumes without a term). The growth discount presumes a level of profitability associated with the committed volumes, and the size of the discount reflects the net present value of that profitability today. Such a growth discount lowers costs to the ILEC by reducing risks and uncertainty associated with future demands. In this respect, it is a cost-based discount, benefitting both parties, similar to the volume and term discounts discussed above, and should be included as Phase 1 relief for the same reasons that I describe above for promotional and contract pricing.

3. Application of Phase 1 Relief

As noted earlier, regulatory relief should mirror, to the extent possible, changes in market entry conditions. The proposed triggers for Phase 1 would operate on a statewide basis and are not limited to specific services. Consequently, it would be appropriate for Phase 1 regulatory relief also to apply to all access services on a statewide basis. Phase 1 relief should be comprehensive because the Phase 1 triggers create the potential for competition in all services and in all geographic areas.

4. Conclusion

Changing regulatory requirements in this way will allow ILECs to better meet the needs of their customers, and will promote economically-efficient pricing to provide correct entry incentives by more closely aligning prices with underlying costs. Many end-user customers, particularly large businesses, have become accustomed to having services and pricing plans customized to fit their needs, rather than buying telephone services out of a "one size fits all" tariff. The retail market and customers have benefited considerably from the introduction of such plans, and I see no reason to expect that the same benefits will not accrue to the benefit of the ILECs' access customers. Also, there is no danger that relief of this type in response to potential competition will allow the ILEC to exercise market power, since the Phase 1 relief simply allows rates to more closely reflect underlying costs.

B. Phase 2: Presence of Competition

Under the FCC's proposal, Phase 2 is reached by an ILEC when an actual competitive presence is established. In other words, Phase 1 only requires that markets be open for competition, whether or not entry has already occurred, while Phase 2 is triggered when an entrant actually uses its own infrastructure or purchases unbundled network elements to offer competitive access. The competitive presence shows that competition is more than just a possibility.

1. Phase 2 Triggers

The FCC proposes the following triggers for Phase 2: (1) demonstrated presence of competition; (2) full implementation of competitively neutral universal service support mechanisms; and (3) credible and timely enforcement of pro-competitive rules.

First, only the first trigger is completely appropriate for Phase 2. The other two triggers are either redundant to other requirements or too subjective to assess in a credible manner. In terms of universal service subsidies, any state fund has to be in compliance with the Act's requirements, including a requirement that it be competitively-neutral. Therefore, making this a prerequisite for access reform is not necessary. Also, the absence of a competitively neutral universal service fund does not change the ILEC's susceptibility to competitive entry, at least for certain customers and in certain geographic areas. While it may be desirable for competitors to have access to these subsidies, lack of access does not reduce the need for providing regulatory flexibility to the ILECs.

The proposed requirement that there be "credible and timely enforcement of pro-competitive rules" by state and federal regulators as a Phase 2 trigger is somewhat odd. First of all, it puts the FCC in the position of passing judgment on its own actions. Second, under what objective criteria can the terms "credible," "timely," and "pro-competitive" be judged? The Commission states that "States and the FCC have a duty to create forums for fast, fair and efficient dispute resolution." I could not agree more, but I do not see how withholding regulatory relief for ILEC access service will encourage state and federal regulators to carry out their responsibilities.

The two triggers just discussed pertain to developments outside of the company's control, as they depend upon the actions of federal and state regulators. Relief for a company that is already subject to actual competition should not be dependent on the actions of third parties; otherwise, the company will be unable to respond effectively to actual competitive pressures, even when the company has done everything in its power to comply with market-development rules. This amounts to the realization of the potential problems of asymmetric regulation. Allowing such a situation to persist for any length of time could easily result in a less-efficient competitor gaining market share on the basis of the actions (or inaction, as the case may be) of regulators, rather than as a result of its ability to provide superior value to consumers.

The actual presence of competition should be demonstrated for Phase 2 in a similar fashion to the way that it is in the Act's test for BOC interLATA entry, *i.e.*, the presence of one or more competitors providing access services predominantly over their own facilities. Market share tests should not be used because market share, as measured in revenues or usage, does not tell the most important part of the story. As recognized by the Commission in its Non-Dominant Order, a more appropriate measure of size in telecommunications is capacity, or, in the Commission's terminology, supply responsiveness.[27] If competitors have sufficient capacity, utilizing either their own installed facilities or the incumbent's unbundled network elements, to take over a significant portion of the market leader's demand, the market leader

[27] *Motion of AT&T Corp. to be Reclassified as a Non-Dominant Carrier*, Order, 11 FCC Rcd 3271, 3357 (1995).

cannot exercise market power. Therefore, if market share is large, the service can still be classified as a Phase 2 service if other firms do not face capacity constraints.

The willingness and ability of customers to change suppliers -- demand responsiveness -- is also a critical element in determining the disciplining effect of potential and actual competition on the incumbent firm's access prices. Services of a commodity like networks, which have little differentiation and relatively low transaction costs to buyers, makes even small price differences attractive. Similarly, the number, size, and sophistication of buyers may also be an important determinant of demand responsiveness, as a shift of a large buyer from one access carrier to another will have major financial impacts on both and will provide them both with incentives to offer their services at the highest quality with the lowest costs.

2. Phase 2 Relief

When an actual competitive presence does develop, it is appropriate for the Commission to reduce regulation significantly more than in Phase 1, given the conclusive evidence that the conditions for potential competition in Phase 1 are being used by actual competitors. In other words, the theory of Phase 1 becomes the reality of Phase 2, and should give regulators additional confidence that the ILEC will be unable to engage in anticompetitive conduct in the face of such entry.

The Commission suggested that the following relief might be granted in Phase 2: (i) elimination of service categories in price cap baskets; (ii) elimination of the ban on differential pricing among customer classes; (iii) ending mandatory rate structure rules for transport and local switching; and (iv) consolidation of traffic sensitive and trunking baskets. However, I conclude that the presence of competition is sufficient for non-dominant classification and the removal of price cap regulation for ILEC access services. Where statutory authority permits, total deregulation may be appropriate.

The Commission should classify a service as Phase 2 in a particular geographic area if competition is sufficient to prevent the incumbent from profitably holding price above the competitive level in that area. In fact, there are some current ILEC services that should qualify for Phase 2 today, such as interLATA corridor services provided under exceptions to the MFJ, special access transport, and directory assistance. Where substantial competition or other factors that act to prevent the exercise of market power exist within a geographic area, non-dominant treatment would be applied across all parts of the state that are classified as being in the same geographic zone. This does not raise competitive concerns because, with deaveraging and other conditions discussed above satisfied, the market conditions are similar within each zone and the substantial competition that exists in one area can easily be extended into adjacent, similarly-situated areas. If the ILEC attempts to leverage any alleged market power in a part of the zone with less than substantial competition, those transgressions will be met with additional entry and expansion of existing competition.

VI. SUMMARY

Access reform is long overdue, and the time is right for reform. With the pace of technological, regulatory, and marketplace changes in telecommunications, rate structure systems that were tolerable, or at least sustainable, under the conditions of the past are no longer appropriate. The Commission should make some necessary changes to the system in order to minimize the effects of regulation on the competitive process, but then should rely on the competitive process, with gradual reductions in regulation that match changes in entry conditions tied to specific triggers, to accomplish its goals of driving access rates closer to efficient levels and promoting sufficient competition for eventual deregulation of carrier access.

The Commission should reform the rate structure to bring it into line with generally accepted economic pricing principles through the market-based approach that it describes in its Notice with the specific recommendations that I describe above, and it should provide a competitively-neutral mechanism for the recovery of the ILEC's prudently-incurred costs. These two steps will set the stage for the efficient development of access competition, in order to eventually reach the Commission's worthy goal of deregulation.

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EDUCATION

University of Chicago	Ph.D	1973
University of Chicago	M.A.	1963
Dartmouth College	A.B.	1960

Dr. Kenneth Gordon is a Senior Vice President with National Economic Research Associates, specializing in utility regulation and related issues. He was Chairman of the Massachusetts Department of Public Utilities from January 1993 to October of 1995. He came to the Massachusetts Commission from the Maine Public Utilities Commission, where he also held the office of Chairman from 1988 through the end of 1992. Prior to that, he was an Industry Economist at the Federal Communications Commission's Office of Plans and Policies. Prior to that, he taught at several colleges since 1965, the most recent position having been at Smith College.

Dr. Gordon was an active member of the National Association of Regulatory Utility Commissioners (NARUC) and served as president of that organization in 1992. He was also a member of the Executive Committee, and the Committee on Communications of NARUC. He has served as Chairman of the New England Conference of Public Utilities Commissioners Telecommunications Committee, and is a former Chairman of the Power Planning Committee of the New England Governors' Conference. He currently also serves as Chairman of the

Bellcore Advisory Committee and is on several other boards and committees. Dr. Gordon has authored a number of publications and lectures widely on topics related to utility regulation.

Dr. Gordon is a graduate of Dartmouth College and holds a doctorate in economics from the University of Chicago.

EMPLOYMENT

November 1995 -	**National Economic Research Associates, Inc.**, Washington, D.C. Senior Vice President
October 1995	**Consulting Economist**
January 1993 - October 1995	**Massachusetts Department of Public Utilities** Chairman
October 1988- December 1992	**Maine Public Utilities Commission** Chairman
1980 - 1988	**Federal Communications Commission, Office of Plans and Policy** Industry Economist
1965 - 1980	**University and College Teaching** (most recently at Smith College)
1963 - 1964	**University of Chicago** Research Associate

CURRENT APPOINTMENTS AND MEMBERSHIPS

Bellcore Advisory Committee,
Member and Chairman, 1993 to present.

Telecommunications Policy Research Conference
Chair, 1995-1996
Board Member, 1994

Energy Modeling Forum (EMF 15, A Competitive Electricity Industry),
Stanford University
Member

American Economic Association

Transportation and Public Utilities Group, AEA

PAST APPOINTMENTS AND MEMBERSHIPS

National Association of Regulatory Utility Commissioners
Communications Committee, 1990 - 1995
Executive Committee, 1991-1995
President, 1992

New England Conference of Public Utility Commissioners
Power Planning Committee
Chairman

Governor's Electric Utility Market Reform Task Force
Co-Chairman

Boston University Telecommunications Forum
Advisor

Center for Public Resources, Legal Program to Develop Alternatives to Litigation
Chairman, Utilities Committee

Office of Technology Assessment, Advisory Panel on International Telecommunications Networks

ACTIVITIES

Participant in numerous regional and state committees, organizations, and task forces.

Participant in various NARUC/DOE conferences on gas and electricity issues.

Frequent speaker on electric, telephone and environmental issues nationally.

TESTIMONIES

Affidavit provided in Support of the Florida Public Service Commission Appeal of the FCC's recent order regarding competitive interconnection among local telecommunications carriers, September 12, 1996.

The New Jersey Board of Public Utilities on behalf of Bell Atlantic - New Jersey: "Economic Competition in Local Exchange Markets," position paper on the economics of local exchange competition filed in connection with arbitration proceedings, August 9, 1996 (with William E. Taylor and Alfred E. Kahn).

Before the Senate Committee on Commerce, Science and Transportation on FCC Structure and Function: Suggested Revisions, March 19, 1996.

Before the Federal Communications Commission in the Matter of Pricing for CMRS Interconnection on behalf of Ameritech, March 4, 1996.

Before the Senate Committee on Commerce, Science and Transportation on Telecommunications Reform on behalf of NARUC, March 2, 1995.

Before the House Committee on Energy and Commerce Committee, Subcommittee on Telecommunications and Finance on H.R. 4789, the Telephone Network Reliability Improvement Act of 1992, on behalf of NARUC, May 13, 1992.

Before the Senate Committee on Commerce, Science and Transportation on H.R. 2546, a bill proposing the Infrastructure Modernization Act of 1991, on behalf of NARUC., June 26, 1991.

SPEECHES (partial list)

Presented "Charging competitors and Customers for Stranded Costs: Competition Compatible?" sponsored by the American Bar Association Section of Antitrust Law: Power Struggle: Antiturst and the Cahnging Rules of Electric Utility Competition, Chicago, Illinois, September 19, 1996.

Remarks before the 1996 EPRI Conference on Innovative Approaches to Electricity Pricing, "Prices and Profits: Perceptions of a Former Regulator," La Jolla, California, March 28, 1996.

Remarks before the Innovative Fuel Management Strategies for Electric Companies Conference sponsored by The Center for Business Intelligence, "Anticipating the Impact of Fuel Clause Reversal on Fuel Management," Vista Hotel, Washington, D.C., March 15, 1996.

Remarks before Electricity Futures Trading Conference, "Electricity Futures Trading: What the States Are Doing," Houston, Texas, March 14, 1996.

Panelist, "Regulatory Panel: Who Has Jurisdiction?" Public Power in a Restructured Industry, Washington, D.C., December 8, 1995.

Participant, "Public Policy for Mergers in a Time of Restructuring," Harvard Electric Policy Group, Crystal City, Virginia, December 7, 1995

Panelist, Roundtable on "Competitive Markets in Electricity and the Problem of Stranded Assets," Progress and Freedom Foundation, Washington, D.C., December 1, 1995.

Panelist on "The Range of Uncertainty" at the Illinois Electricity Summit, Northwestern University, Evanston, IL., November 28, 1995.

PUBLICATIONS

"The Regulators' and Consumer Advocate's Dilemma", *Purchased Power Conference*, Exnet, 1993.

"Public Utility Regulation: Reflections of a Sometime Deregulator", *Public Utilities Fortnightly*, Nov. 1, 1992.

"Utilities as Conservationists: One Regulator's Viewpoint', in *The Economics of Energy Conservation*, proceedings of a POWER Conference, Berkeley, CA, 1992.

"Incentive Regulation in Telecommunications: Lessons for Electric and Gas", in *Incentive Regulation*, Proceedings and Papers, 1992 (Exnet).

"Regulation: Obstructer or Enabler?", in *Proceedings; Cooperation and Competition in Telecommunications*, Conference sponsored by the Commission of the European Directorate General XIII, Rome, 1993.

"A Basis for Allocating Regulatory Responsibilities", in Clinton J. Andrews, (ed.), *Regulating Regional Power Systems*, Quorum Books, Westport, CT, 1995 (with Christopher Mackie-Lewis).

Book review: Stephen Breyer, *Breaking the Vicious Circle: Toward Effective Risk Reduction*, Harvard University, Press, 1992, in Federal Reserve Bank of Boston, Regional Review, 1994.

"Weighing Environmental Coasts in Utility Regulation: The Task Ahead", *The Electricity Journal*, October, 1990.

"The Effects of Higher Telephone Prices on Universal Service" Federal Communications Commission, Office of Plans and policy, Working Paper No. 10, March, 1984 (with John Haring).

"Are Recent FCC Telephone Rate Reforms a Threat to Universal Service" in Harry S. Trebing (ed.), *Changing Patterns in Regulation, Markets and Technology: The Effect on Public Utility Pricing*, University of Michigan Press, 1984 (with John Haring).

"A Framework for a Decentralized Radio Service, "a staff report of the Office of Plans and Policy, Federal Communications Commission, September, 1983 (with Alex Felker).

"L'impact de la television par cable sur les autres medias" (The Impact of Cable Television on other media in the United State"), *Trimedia*, numero 18019, printemps, 1983 (in French, also reprinted in Spanish).

"FCC Policy on Cable Ownership" in Gandy, Espinosa & Ordover, (eds.) *Proceedings from the Tenth Annual Telecommunications Policy Research Conferences*, ABLEX, Norward, N.Y., 1983.

"FCC Policy on Cable Crossownership", a staff report of the Office of Plans and Policy, Federal Communications Commission, November, 1981. (With Jonathan levy and Robert S. Preece; I was director of the study.)

"Economics and Telecommunications Privacy: A Framework for Analysis," Federal Communications Commission, Office of Plans and Policy, Working Paper No. 5, December, 1980. (With James A. Brown).

"The Effects of Minimum Wage on Private Household Workers" in Simon Rottenberg, (ed.), *The Economies of Legal Minimum Wages*, American Enterprise Institute, Washington, 1981.

"Deregulation, Rights and the Compensation of Losers, "in William G. Shepherd and Kenneth Boyer, eds., *Economic Regulation: A Volume in Honor of James R. Nelson*, University of Michigan Press, 1981. Also circulated as American Enterprise Institute Working Paper in Regulation, 1980.

"Social Security and Welfare: Dynamic Stagnation", *Public Administration Review*, March 1967.

OTHER PUBLICATIONS

Public Utilities Fortnightly, State Regulators' Forum, Contributor since 1992.

"Competition, Deregulation and Technology: Challenges to Traditional Regulatory Process", *In Your Interest*, Minnesota Utility Investor, Inc., 1992.

"Policing the Environment", *Institutional Investor*, October, 1992.

INCIDENTAL TEACHING AND LECTURING

University and College
Yale School of Management and Organization
Harvard Law School, Telecommunications Seminar
Suffolk University Law School
University of Maine
Boston University

Other
Edison Electric Institute
(Electricity Consumers Resource Council)

January 1997

ATTACHMENT C

TIC Bulk Billing Illustrative Example

Following is an example of how Ameritech would "bulk bill" the TIC to its interstate customers on the basis of each customer's share of interstate retail revenues as a percentage of total interstate retail revenues within Ameritech's region:

1. Total Interstate Retail Revenues w/in Ameritech Region	$10 Billion
2. Company ABC Interstate Retail Revenues w/in Ameritech Region	$3.2 Billion
3. Percentage of Interstate Retail Revenues earned by Company ABC (Line 2/Line 1) (Note: This factor would be recalculated quarterly)	32%
4. Total Ameritech Interstate TIC Revenues	$335 Million
5. TIC Revenue Requirement Reassigned to Tandem	$25 Million
6. Restated Annual TIC Revenue Requirement (Line 4-Line 5)	$310 Million
7. Monthly TIC Revenue Requirement (Line 6/12)	$25.8 Million
8. Initial monthly TIC Revenues to be recovered from Company ABC (Line 3 * Line 7)	$8.3 Million

A five-year phase-out of the TIC would result in the following:

1998:	Total Monthly Ameritech TIC Revenue	$25.8 Million
	Company ABC Monthly TIC Payment	$8.3 Million
1999:	Total Monthly Ameritech TIC Revenue	$20.6 Million
	Company ABC Monthly TIC Payment	$6.6 Million
2000:	Total Monthly Ameritech TIC Revenue	$15.5 Million
	Company ABC Monthly TIC Payment	$5.0 Million
2001:	Total Monthly Ameritech TIC Revenue	$10.3 Million
	Company ABC Monthly TIC Payment	$3.3 Million
2002:	Total Monthly Ameritech TIC Revenue	$5.2 Million
	Company ABC Monthly TIC Payment	$1.7 Million
2003:	Total Monthly Ameritech TIC Revenue	$0
	Company ABC Monthly TIC Payment	$0

The payment required from each customer would vary based on each customer's updated share of retail interstate revenues.

ATTACHMENT D